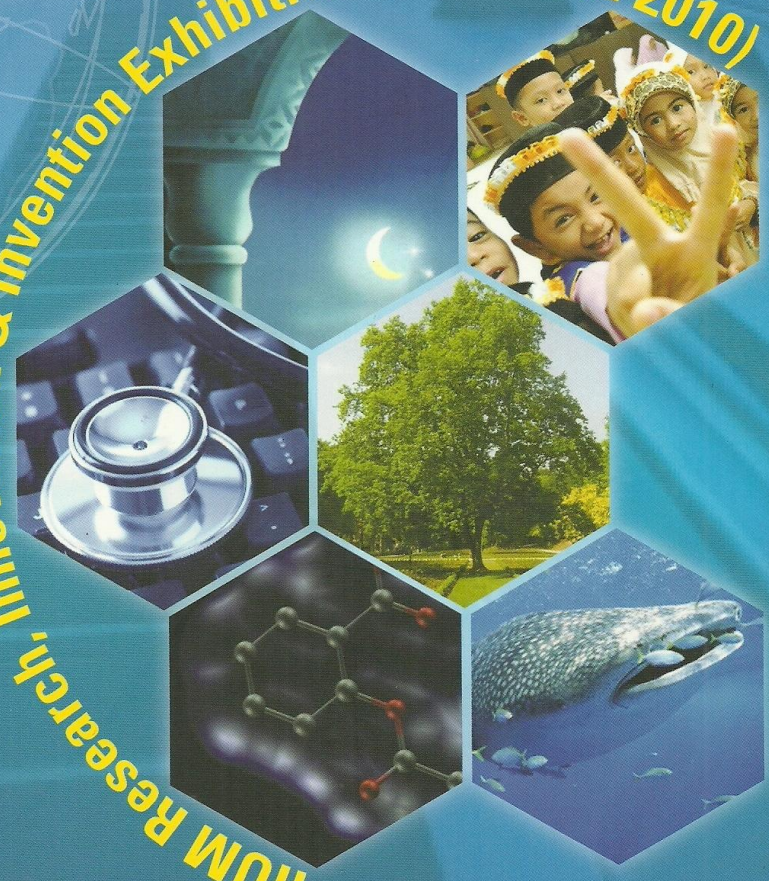
IRIIE 2010

الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يونيورسيتي إسلام انترناسيونال ملايسيا

IIUM Research, Innovation & Invention Exhibition 2010 (IRIIE 2010)



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properties. Specifically, CNT loading in amount less than 1% showed better tensile strength and stiffness while the strength falls off at 1% CNT loading. Morphological studies indicate better dispersion of CNT in the polymer matrix at process temperature of 170^0C and formation of agglomerates at 250^0C. The present study suggest that CNT loading and process temperature lower than 1% and 200^0C respectively produces polypropylene ternary nanocomposites with better mechanical properties and enhanced dispersion of the CNT in the polymer matrix irrespective of the mixing speed.

PP-111 A Programmable Dirham Coin based Hajj Saving Electronic Device

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Hajj, one of the five pillars of religion of Islam requires long-term saving. As most of the Muslim majority countries are developing countries and also facing financial instabilities, savings tend to loose value due to depreciation of the national currencies, political and economic conditions of the countries. As a solution to this problem, hajj saving in gold has been proposed has the solution to this paper money devaluation. Previous studies have proven that there is a significant effect in cost of hajj when it is priced in gold oppose to paper currency.

A novel programmable dirham coin based hajj saving electronic device is implemented in this work. Fitted with a two inch LCD display, the device converts the instantaneous weight of the coin in the saving compartment to alphanumeric numerals for display on the LCD screen. Aside the content value display, another unique feature the device has the ability to extrapolate and display the required amount for completing the hajj fee on a regularly basis, thus each owner is motivated to increase the amount in the saving. A tampered proof unit have been fitted with the device and warning alert sound is triggered incase of unwarranted access of the content.

This works is thus a contribution to the fulfillment of the fifth pillar of Islam and also a step towards establishing a non-inflationary and stable shariah compliant savings and economy.

PP-115 Development of Ternary Nanocomposite for Civil Construction and Fabrication of Process Vessels

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Introduction: Polymer reinforced with Carbon Nanotubes and Nanoclay are receiving research attention for various industrial applications such as automobile interior and exterior accessories, air and space craft, electronics, civil constructions and fabrications of process vessels Problem Statement: Current researches have shown that the thermoplastic-clay nanocomposites have failed to live up to the earlier predictions albeit they have found some niche area of applications. This research work therefore aimed at studying the effect of carbon nanotube as secondary filler on the mechanical properties of polypropylene-clay nanocomposite. Approach: Hybrid polypropylene-clay nanocomposite was prepared in the presence of multiwall carbon nanotubes (MWCNTs) as secondary additives using melt intercalation process. The effect of Multiwall Carbon Nanotubes (MWCNTs) on the polypropylene/clay matrix was investigated in terms of dispersion using XRD, tensile test (ASTM D 638) and notched Izod impact test (ASTM D256). These were compared with the conventional polypropylene-clay nanocomposite. Results: The resulting composite shows about 42% increase in the modulus, 26.20% in the tensile strength and 13.30Kj/m^2 impact strength when compared with binary combination of PP/Clay nanocomposite. XRD patterns of PP/Clay and PP/Clay/MWCNT nanocomposites show different diffraction peaks which are indications of intercalation mixed with macromixing. Conclusion: This study showed that MWCNT can successfully address the common shortcomings peculiar to PP/Clay nanocomposite and the end product will be suitable in an area where material of high mechanical strength is needed.